

Listing of Claims:

1. (Currently Amended) A method of combined source-channel decoding of digital data coding discrete values or symbols (i, j, etc.) received by ~~[[a]]~~ an input convolutional channel decoder (51) of a digital data ~~turbodecoder decoder~~ (50) from a source (10) over a transmission channel (40), the method comprising the steps of:

applying a priori probabilities ($p(i)$, $p(i/j)$) associated with said symbols to a channel decoding trellis of said input convolutional channel decoder (51); and

statistically estimating, at each iteration of the turbo-decoder (50), said a priori probabilities from occurrences of the symbols estimated by said ~~turbodecoder decoder~~ (50).

2. (Cancelled).

3. (Currently Amended) The combined decoding method according to claim 1, wherein said a priori probabilities are probabilities ($p(i)$) of occurrences of the symbols.

4. (Currently Amended) The combined decoding method according to claim 1, wherein said a priori probabilities are probabilities ($p(i/j)$) of transitions between the symbols.

5. (Cancelled).

6. (Cancelled).

7. (Currently Amended) The combined decoding method according to claim 1, wherein said symbols are coded by variable length codes (VLC) represented by a binary tree of finite size and said a priori probabilities ($p(i)$, $p(i/j)$) are associated with each branch of said tree and applied to the corresponding stages of said channel decoding trellis.

8. (Currently Amended) A combined source-channel turbodecoder (50) ~~decoder~~ for digital data, comprising:

[[a]] an input convolutional channel decoder (51) adapted to receive digital data transmitted from a source (10) over a transmission channel (40) and coding discrete values or symbols (i , j , etc.) and a priori probabilities associated with said symbols;

an output convolutional channel decoder (51');

a generator (54) of histograms of occurrences of the symbols estimated by the output convolutional channel decoder (51') [[(50)]];

means (55) for calculating said a priori probabilities ($p(i)$, $p(i/j)$) associated with said estimated ~~restored~~ symbols; and

means (56) for applying said a priori probabilities to a channel decoder trellis of the input convolutional channel decoder (51).

9. (Currently Amended) The combined turbodecoder ~~decoder~~ according to claim 8, wherein said channel decoding trellis produces binary values ((0, 1) or (-1, 1) considering modulation) and said means for applying said a priori probabilities comprise a module (56) for converting symbol a priori probabilities ($p(i)$, $p(i/j)$) into probabilities of binary values ((0, 1) or (-1, 1)).

10. (Currently Amended) The combined decoder according to claim 8, wherein said a priori probabilities are probabilities ($p(i)$) of occurrences of the symbols.

11. (Currently Amended) The combined decoder according to claim 8, wherein said a priori probabilities are probabilities ($p(i/j)$) of transitions between the symbols.

12. (Cancelled).

13. (Cancelled).

14. (Currently Amended) The combined decoder according to claim 8, wherein said symbols are coded by variable length codes (VLC) represented by a binary tree of finite size and said a priori probabilities ($p(i)$, $p(i/j)$) are associated with each branch of said tree and applied to the corresponding stages of said channel decoding trellis.